Unique Identification (UID) of Items

Defense Acquisition University
March 2004

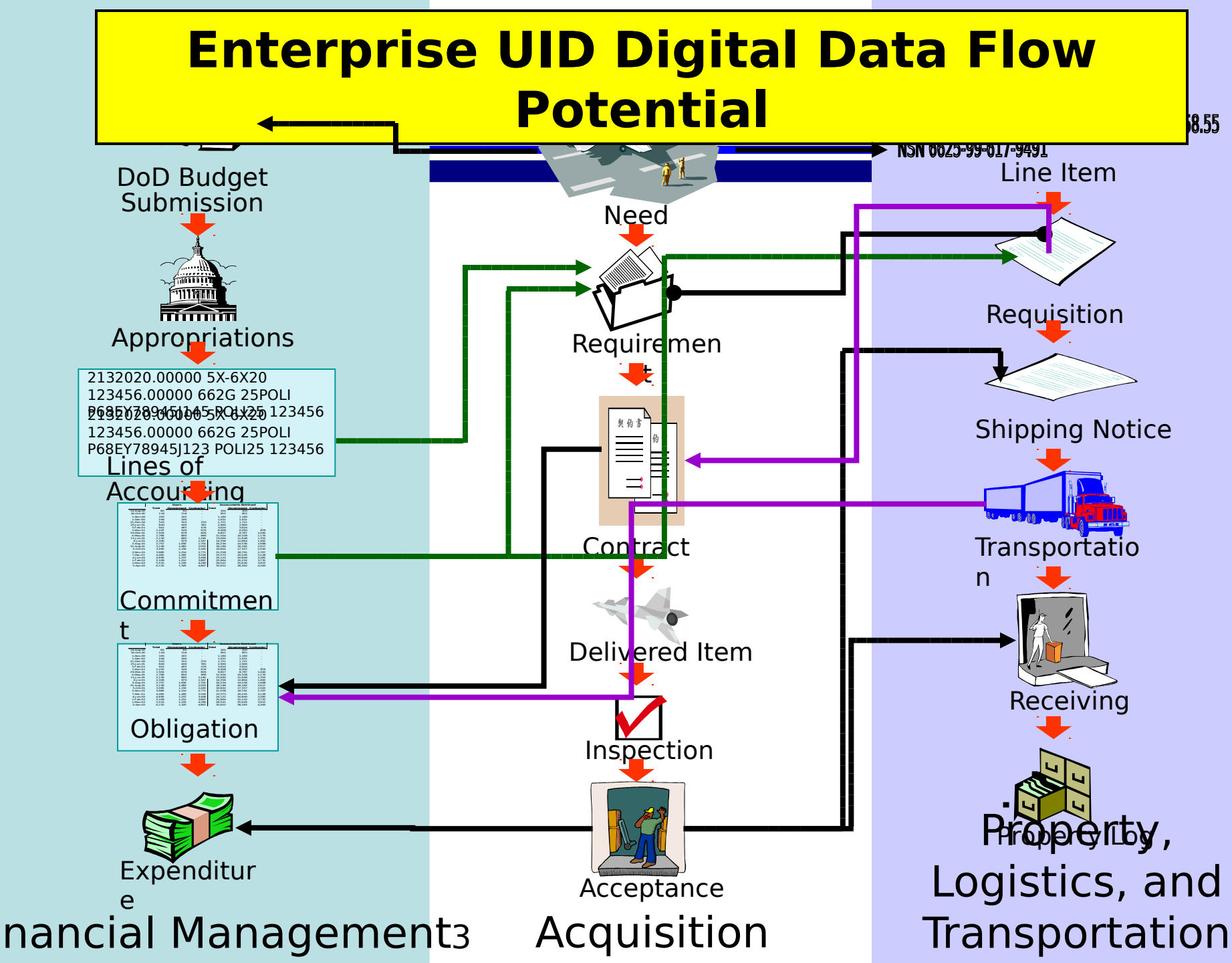
Agenda

- Overview of UID Program
- Contracting for UID
- The UID Mark
- Marking Items
- Capturing and Using UID Data
- Bottom Line
- Resources

"Unique identification is the ability to physically distinguish one item from another…We view a unique identifier as a set of data for assets that:

- *is globally unique and unambiguous*
- *ensures data integrity and data quality throughout life*
- *supports multi-faceted business applications and users"*

Enterprise UID Digital Data Flow Potential



DoD Vision for Item Marking

To implement a policy establishing a strategic imperative for uniquely identifying tangible items relying to the maximum extent practical on international standards and commercial item markings and while not imposing unique government data requirements.

Uniquely identified (UID) tangible items will facilitate item tracking in DoD business systems and provide reliable and accurate data for management, financial, accountability and asset

Effective 1 January 04 Mandatory for Solicitations

Unique **ID**entification **(UID)** is….

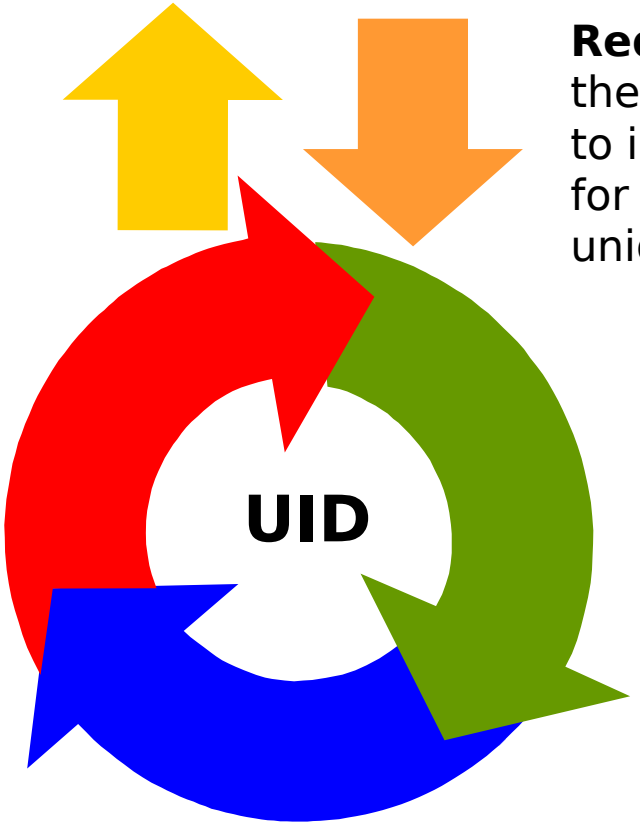
UID is . . .

. . . the set of data for tangible assets that is globally unique and unambiguous, ensures data integrity and data quality throughout life, and supports multi-faceted
[illegible]ions and

EID	**(12V)194532636**
Orig. Part No.	**(1P)1234**
Serial No.	**(S)786950**

What is the UID Lifecycle?

Dispose – DoD/GSA records the "termination" of the UID at time of item disposal



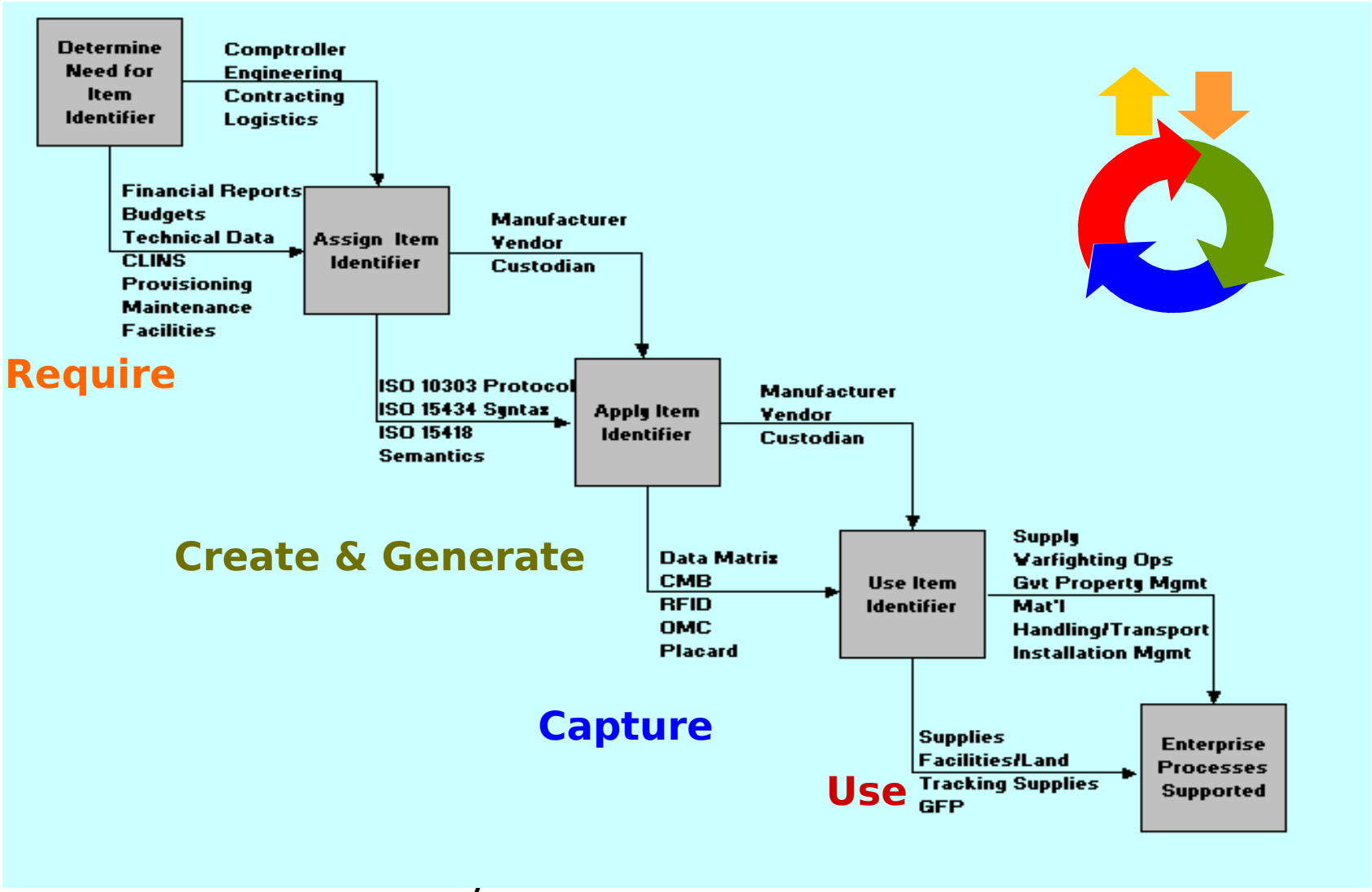
Require – DoD contracts reflect the requirement for part marks to include UID data elements for all items which require unique identification

Use – Functional stakeholders use UID as a primary or alternate key in the AIS to access or update item information based on its UID

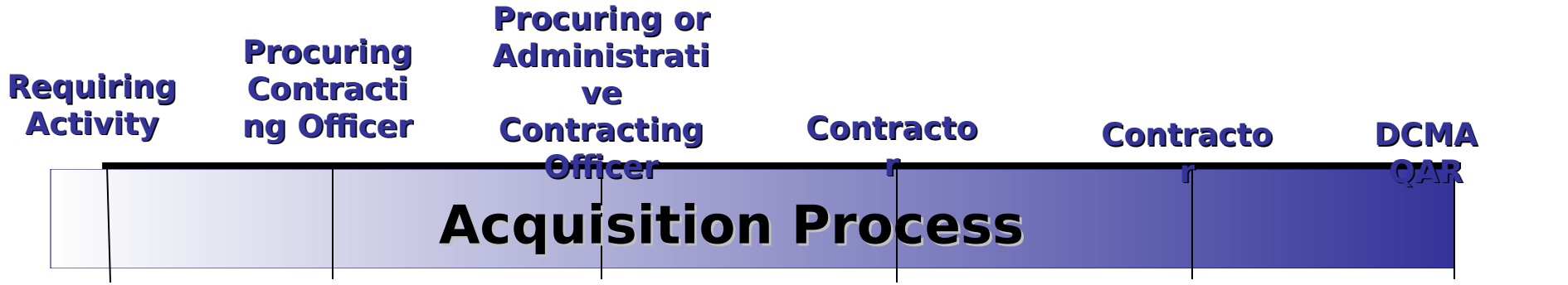
Create/Generate – Industry suppliers/manufacturers throughout supply chain assign and apply UID data elements and ensure the uniqueness of the component data elements

Capture – DoD establishes the "birth" record of the UID by capturing the machine/human readable component data elements to create the UID in the AIT/AIS

UID Lifecycle & Interface Flow



Who Does What – When?



Requiring Activity	Procuring Contracting Officer	Procuring or Administrative Contracting Officer	Contractor	Contractor	DCMA QAR
Determine Need for Unique Identifier	Issue Solicitation and Award Contract with DFARS Clause 252.211-7003, UID/Valuation Requirement	Contracting Officer issues any necessary modifications (e.g., definitization)	Contractor Places UID Marking on the Item and Prepares Material Inspection & Receiving Report (MIRR)	Contractor Includes UID/Valuation Information on MIRR and submits to UID Registry via WAWF*	Government QAR Inspects & Accepts

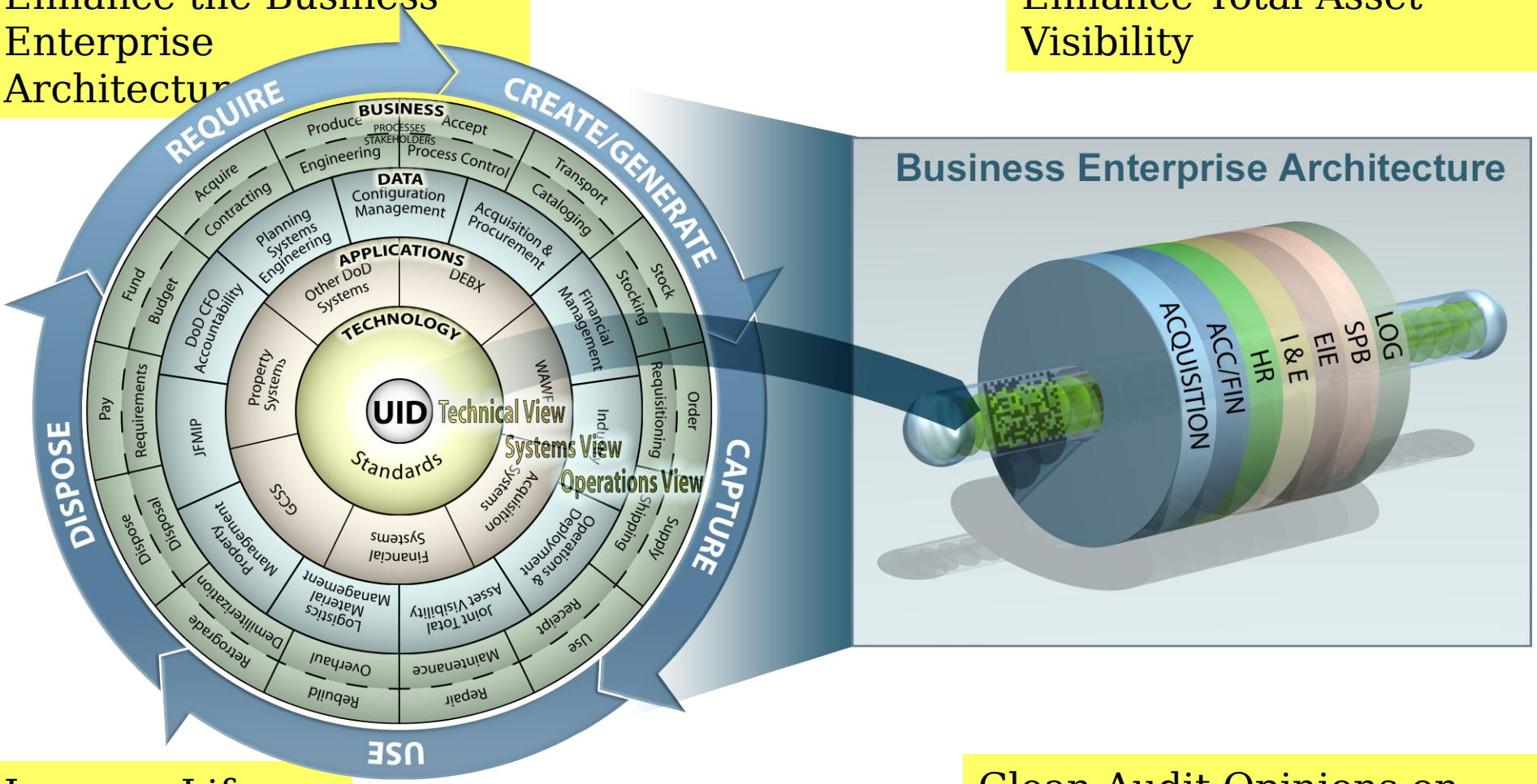
*Contractor May Submit UID/Valuation Information to UID Registry via Other Electronic Means After Government Inspection and Acceptance

http://www.acq.osd.mil/uid/data_submission.html

UID Role - Business Enterprise Architecture

Enhance the Business Enterprise Architectur

Enhance Total Asset Visibility



Improve Life-Cycle Item

Clean Audit Opinions on Property, Plant and Equipment & Operating

UID Strategic Outcomes

DoD considers the implementation of unique identification to be a strategic imperative, necessary to efficiently move supplies to warfighters. UID will:

✓ Enhance logistics, contracting, and financial business transactions supporting U.S. and coalition troops

✓ Enable DoD to consistently capture the value of items it buys, control these items during their use, reduce operating costs and combat counterfeiting of parts

✓ Enable DoD to make appropriate entries into its property accountability, inventory, and financial management information systems toward achieving compliance with the Chief Financial Officers Act

UID Payoffs

- **Increase business intelligence**
- **Achieve clean audit opinion**
- **Increase systems/equipment operational availability**
- **Lower costs of managing and ownership of assets**

UID JRIB & References

- **UID Joint Requirements Implementation Board (JRIB)**
  - Collaborative means for communicating, educating, and expediting UID implementation
  - Provides recommendations to Acting USD (AT&L) and the Domain Owners Integration Team for decision making as necessary
  - **JRIB Working Groups**: ISO Standards, DFARS, Business Rules Integration, UID/Systems Engineering, AIS Technical Interface (TIWG), Inspection & Acceptance, UID/RFID, UID/Performance Based Logistics
    - Others will be established
- **References**
  - USD (AT&L) Policy Memoranda of July 29, Nov 26, Dec 22, 2003
    - Unique Identification (UID) of Tangible Items
  - MIL-STD-130L of 10 October 2003
  - DFARS Second Interim Rule effective Jan 1, 2004
  - DoD Guide to Uniquely Identifying Items
    - Latest version at **http://www.acq.osd.mil/uid**

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DFARS INTERIM RULE

- Title: Item Identification and Valuation
- Scope: Adds Section 211.274 through 211.274-3 to Part 211
- 1ST Interim Rule – 10 Oct 03
- 2ND Interim rule – 30 Dec 03
  - Incorporate Public Comments Received on 1ST
  - Effective January 1, 2004
- Final Rule Projected for June 04

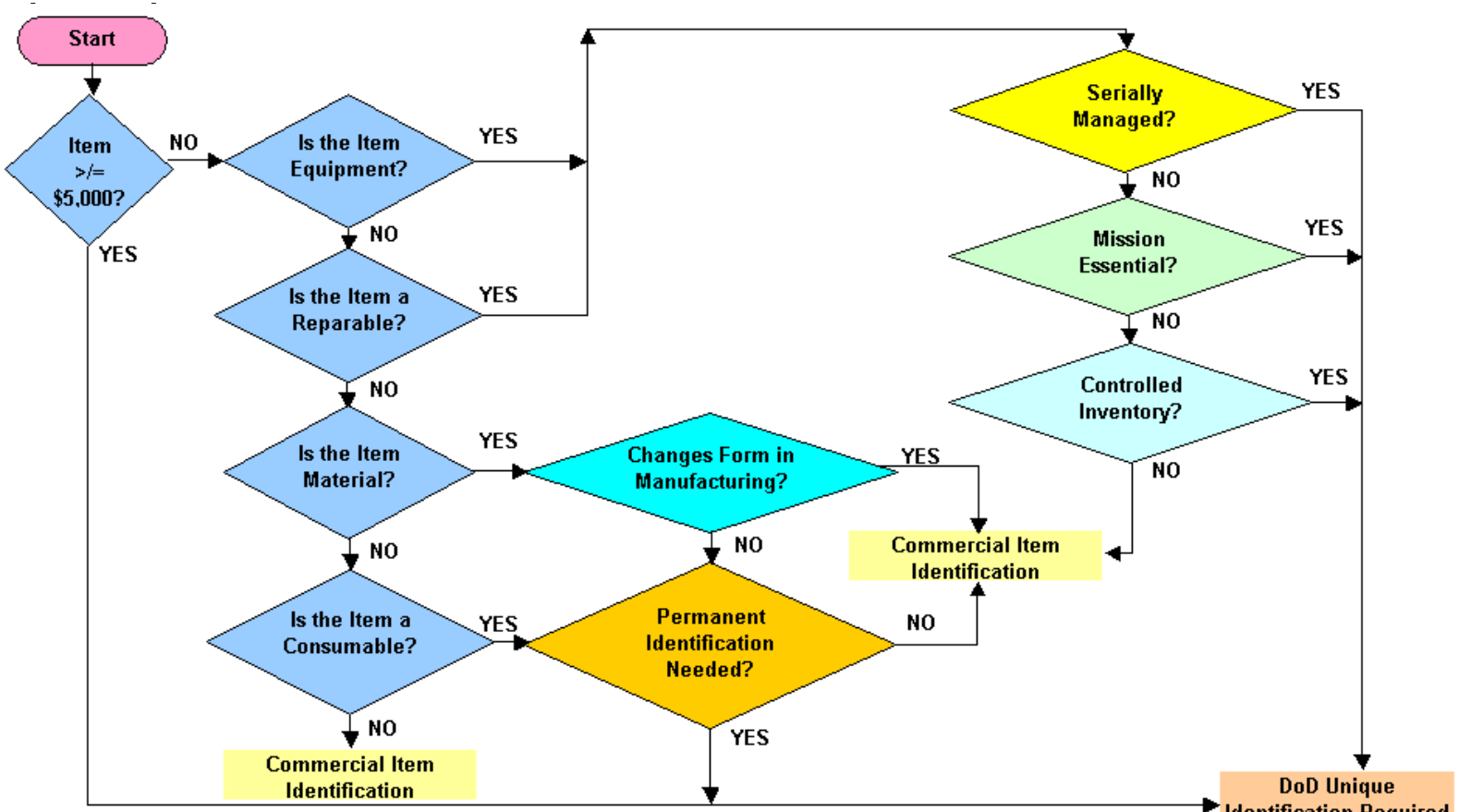
DFARS Rule Walkthrough

- DFARS 211.274-1 Item Identification = What needs a UID
  - Items >/= $5,000
  - Items < $5,000 as directed by requiring activity
  - Subassemblies, components and embedded items
  - Commonly accepted commercial marks
- DFARS 211.274-2 Government's Unit Acquisition Cost
  - Applies to all items delivered regardless of dollar value
  - For fixed price type items – unit price identified at time of delivery
  - For cost type line items – estimated fully burdened unit cost to the Government for each item at the time of delivery
  - Valuation data not required for subassemblies, components and parts embedded
- DFARS 211.274-3 Contract Clause
  - Hardware
  - Fill-ins

Clause 252.211-7003 Implements UID Requirement

Require the UID

Which Items Require a Unique Identifier



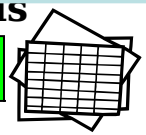
Commercial item identification examples are the Universal Product Code and Health Industry Bar Code

UID in Systems Acquisition

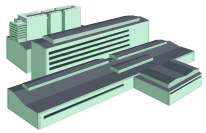
Product Data | **Supply Chain** | **Unique Items** | **UID ****

Enterpris

Prime



PN 200H0028



Item Markings
EI 194532636 PN 200H0028 SN 003896*

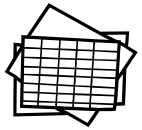
UN194532636200H0028003896

End Item Specs

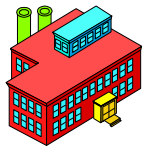
Delivery to Govt
End Item

List of Hardware UIDs (Optional)

Tier 1



PN 210H0611



Item Markings
EI 040535536 PN 210H0611 SN 006392*

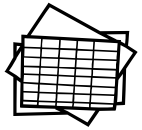
UN040535536210H0611006392

Subassembly Specs

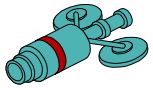
Delivery to Govt
Spares

List of Hardware UIDs (Optional)

Tier 2



PN 216H1439



Item Markings
EI 080907280 PN 216H1439 SN 020890*

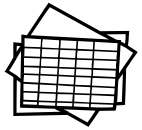
UN080907280216H1439020890

Component Specs

Delivery to Govt
Spares

List of Hardware UIDs (Optional)

Tier 3



PN 218H2861

Item Markings
EI 083949107 PN 218H2861 SN 105742*

UN083949107218H2861105742

Part Specs

Delivery to Govt
Spares

**UN = Issuing Agency Code for DUNS

* Serialized within the part number using DUNS

UID = Unique Identifier; EI = Enterprise Identifier
PN = Part Number; SN = Serial Number

Item Identification and Valuation Clause DFARS 252.211-7003

- All items delivered to the Department will be delivered under a CLIN, SubCLIN, or ELIN.
  - Modifications may have to be issued to add CLINs, SubCLINs, or ELINs if additional deliverables are identified during contract performance.
- Contractors provide DoD unique item identification, or unique identification equivalent for:
  - All items for which the Government's unit acquisition cost (valuation) is >= $5,000;
  - Items identified in DFARS 252.211-7003(c)(1)(ii)
  - Subassemblies, components, and parts embedded within items as specified in an Exhibit or CDRL
- Valuation reporting (Government's Unit Acquisition Cost) **at time of delivery**, as part of the Material Inspection and Receiving Report (MIRR), for **all** items delivered to the Government.
  - Valuation for Fixed Price Items is the ***unit price identified in the contract*** at the time of delivery.
  - Valuation for Cost Type Items is the ***Contractor's estimated fully burdened unit cost*** to the Government for each item at the time of delivery
- Contractors to include Item Marking in subcontracts.

Business Rules for Contracts and Administration*

- Within the same Contract Line Item Number (CLIN), there is no need for a contractor to segregate the same items delivered against different Accounting Classification Reference Numbers (ACRN)
- For FAR Part 12 contracts and subcontracts:
  - Use existing commercial marking if available, or
  - The Government can mark the item, or
  - The Government can request the contractor mark the item
- Foreign Military Sales (FMS) contracts are not exempt from UID

- * Department of Defense Guide to Uniquely Identifying Items Appendix C – Business Rules (Version 3.5a)

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Create and Generate the UID

The components that make up the UID are identified in the table below. Each enterprise has two options for creating the UID. *These are constructs*

	UID Construct #1	UID Construct #2
Based on current enterprise configurations	If items are serialized within the Enterprise	If items are serialized within Part Number
UID is derived by concatenating the data elements IN ORDER:	Issuing Agency Code* Enterprise ID Serial Number	Issuing Agency Code* Enterprise ID Original Part Number Serial Number
Data Identified on Assets Not Part of the UID (Separate Identifier)	Current Part Number	Current Part Number

*The Issuing Agency Code (IAC) represents the registration authority that issued the enterprise identifier (e.g., Dun and Bradstreet, EAN.UCC). The IAC can be derived from the data qualifier for the enterprise

Create and Generate the UID

- Data qualifiers (semantics) will define each machine-readable data element marked on the item.
- The data qualifier associated with the serial number will identify which UID construct is used to build the UID.

Semantics Translation Between Data Identifiers (DI), Application Identifiers (AI),
and

Enterprise ID	DI	AI	TEI
CAGE/NCAGE	17V		CAG*, MFR or SPL
DUNS	12V		DUN*
EAN.UCC		95	EUC*
Serial No. w/in Enterprise Identifier			SER or UCN
Serial No. w/in Original Part No.	S	21	
Original Part No.	1P	01	PNO*
Unique Identifier (With IAC)	25S	8004	UID*
Item Identifier (Without IAC)	18S		USN or UST
Current Part No.	30P	240	PNR

[1] Blank boxes indicate the need for updates to the standards.

* Usage pending Air Transport Association approval of these TEIs

Create and Generate the UID

BUSINESS RULES

- The UID shall be derived from its discrete component data elements. The UID is not required to be marked on the item as a separate data element.*

UID Construct

Item ID
(18S)0CVA5786950
(w/o IAC)

UID Construct #1

D1 0CVA5786950

IAC CAGE + Serial No.

UID Construct

EID
(12V)194532636

Orig. Part No. (1P)1234

Serial No.
(S)786950

UID Construct #2

UN1945326361234786950

IAC EID Orig. Part No. Serial No.

[1] This example uses MH10.8.2 Data Identifiers.

*If the enterprise chooses to mark the UID as a discrete data element on the item, the component data elements must also be marked on the item as discrete data elements, in addition to the UID.

Business Rules UID Construction & Physical Marking (Selected)

- If UID Construct #2 is used, the enterprise must maintain the original part number on the item for the life of the item
- The UID will not change over the life of the item. Therefore the component data elements of the UID will not change over the life of the item
- Where space is available, human readable information for UID data elements shall be marked on the item.
- The UID string of data must have worldwide uniqueness (non-repeatable)

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Marking Items

- DoD Guide to Uniquely Identifying Items
  - Appendix D – The Mechanics of Unique Identification
  - Addresses Constructs 1 & 2
  - Semantics to be Machine Readable
  - Syntax – instructions to assemble data fields to define unique identifier
    - Multiple examples provided for both constructs
- MILSTD 130L
  - Department of Defense Standard Practice [for] Identification of U.S. Military Property
  - 10 October 2003
  - Provides criteria by which product designers develop specific item identification marking requirements
- Association for Automatic identification (AIM) and Data Capture Technologies
  - Association of Solution Providers
    - **http://www.aimglobal.org**
- But, per USD (AT&L) Memo of 26 November 2003, UID equivalents are permissible

Business Rules UID Construction & Physical Marking (Selected)*

- The UID component data elements, at a minimum shall be contained in a Data Matrix ECC200 symbol, as required by MIL STD 130 L (or later version). Data may be contained in other AIT media (e.g., contact memory buttons, linear bar codes, RFI, etc) in addition to the Data Matrix. The physical marks that contain the UID-required elements shall remain legible until the item is destroyed.

* Department of Defense Guide to Uniquely Identifying Items Appendix C – Business Rules (Version 3.5a)

DoD UID Equivalents

- Criteria for Determining DoD UID Equivalents
  - Must contain an enterprise identifier which is assigned by a registration or controlling authority
  - Must uniquely identify an individual item within an enterprise identifier, product or part number
  - Must have an existing Data Identifier (DI) or Application Identifier (AI) listed in ANSI MH10.8.2, Data Identifier and Application Identifier Standard
- Identifiers Meeting the Equivalence Criteria
  - Global Individual Asset Identifier (GIAI) EAN.UCC (AI:8004)
  - Global Returnable Asset Identifier (GRAI), EAN.UCC (AI: 8003)
  - Vehicle Identification Number (VIN) ISO 3779 (DI: I)
  - Electronic Serial Number (ESN, cellular telephones only), TIA (DI: 22S)

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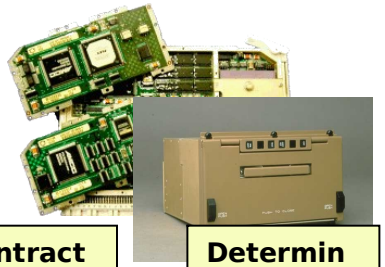
UID Vendor Perspective



Contract Award

Determine what items need to be marked

Determine mark method and location

Create MBOM and MPP

Make Item

Functional Inspect

Buy Item

Subcontract SOW with UID Requirements

Receive Inspect & Store

Retrieve from Stock

Record UID, Integrate into end Product

Mark Item, Capture UID(s)

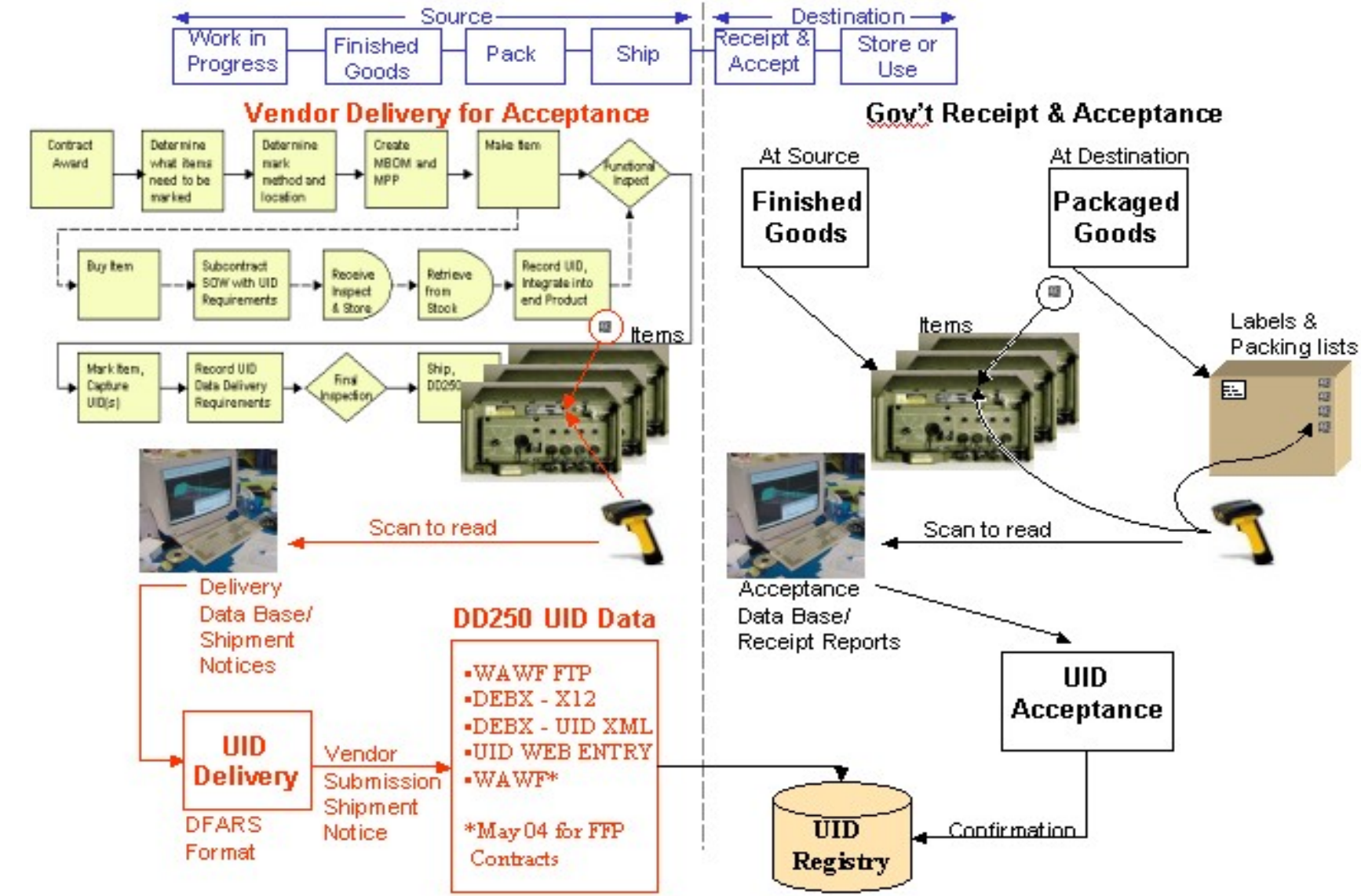
Record UID Data Delivery Requirements

Final Inspection

Ship, DD250

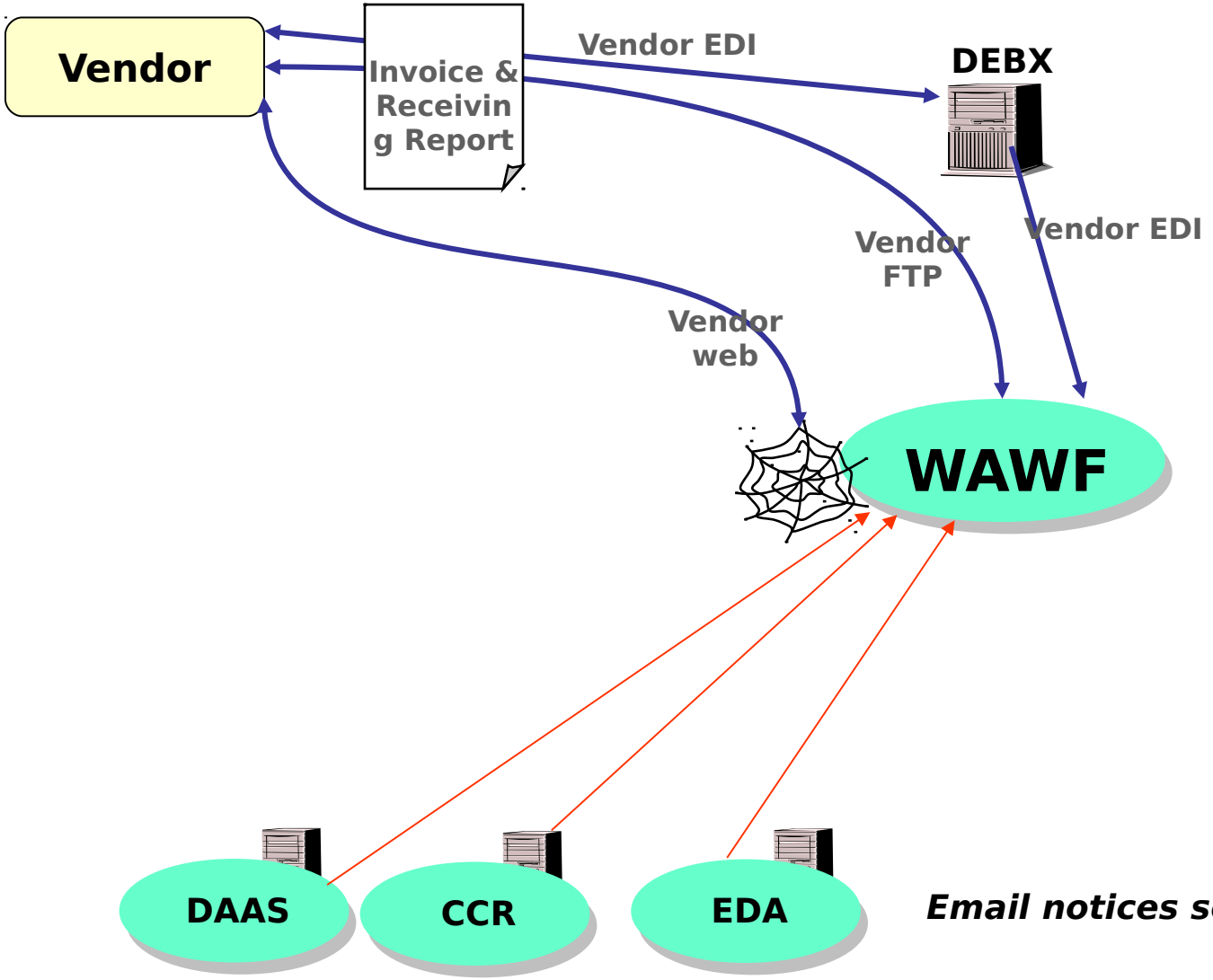
MBOM – Manufacturing Bill Of Materials
MPP – Manufacturing Process Planning

UID Receipt & Acceptance Process



Vendor Submits Invoice

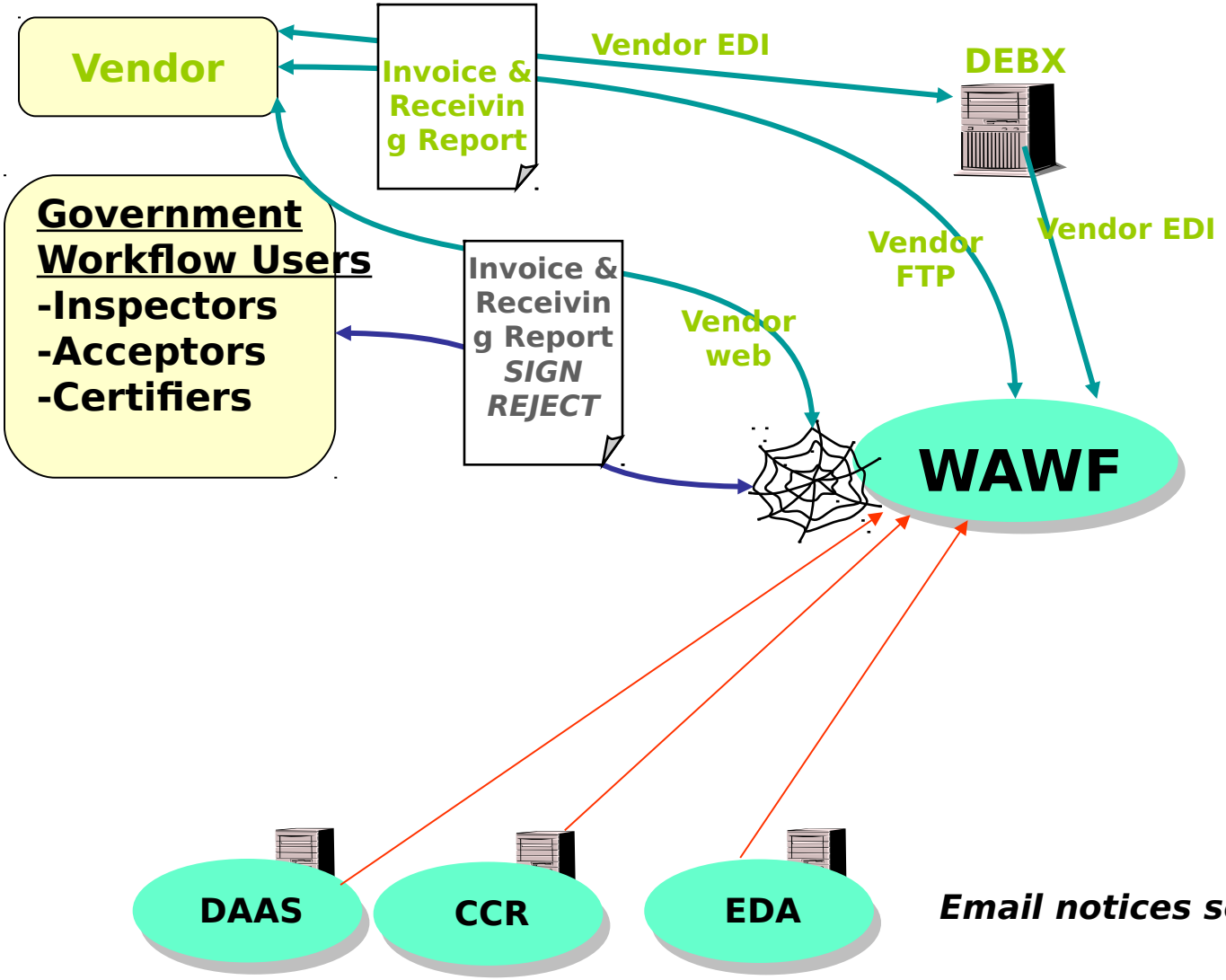
Operational View



Email notices sent to next workflow us

Government Accepts

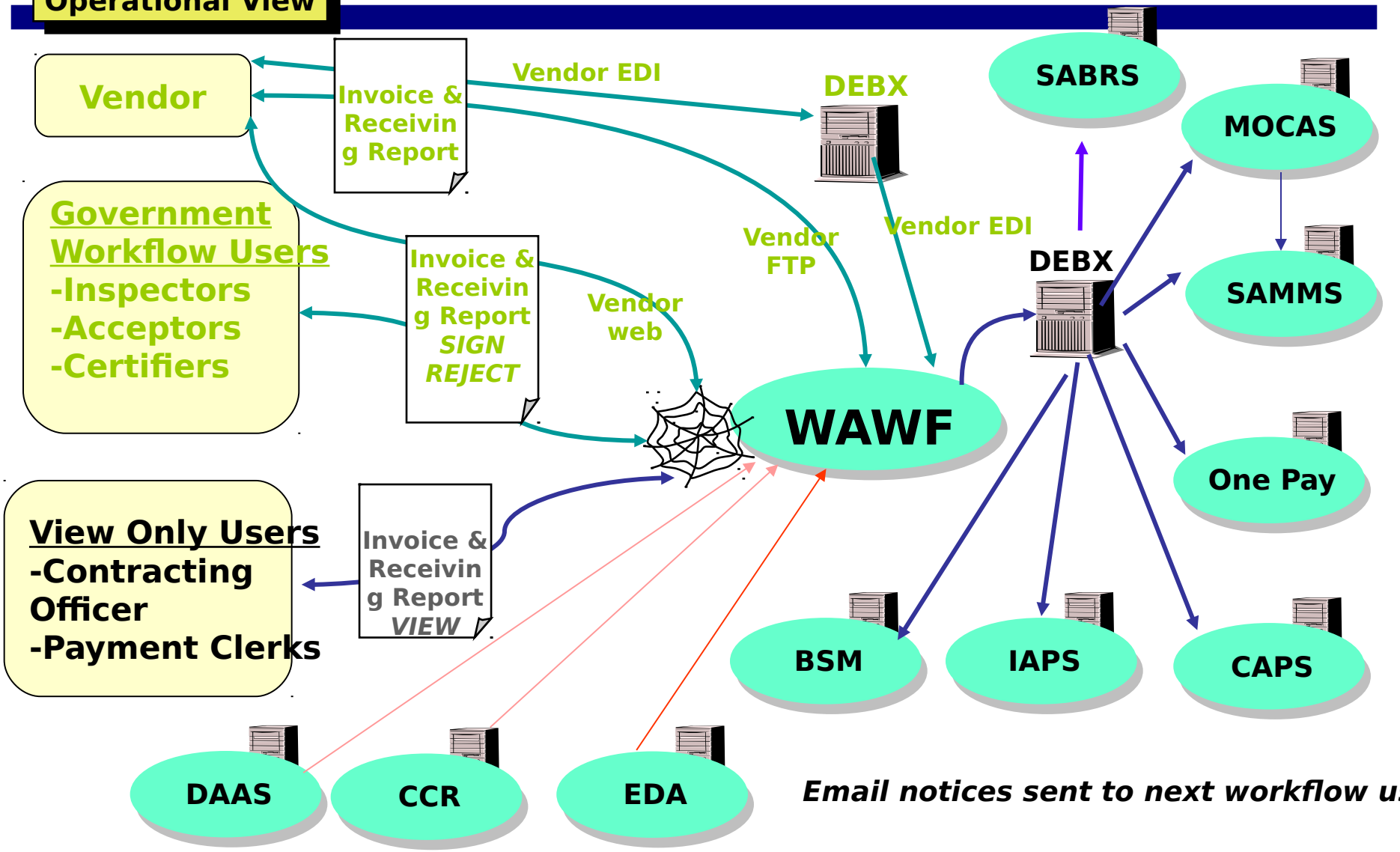
Operational View



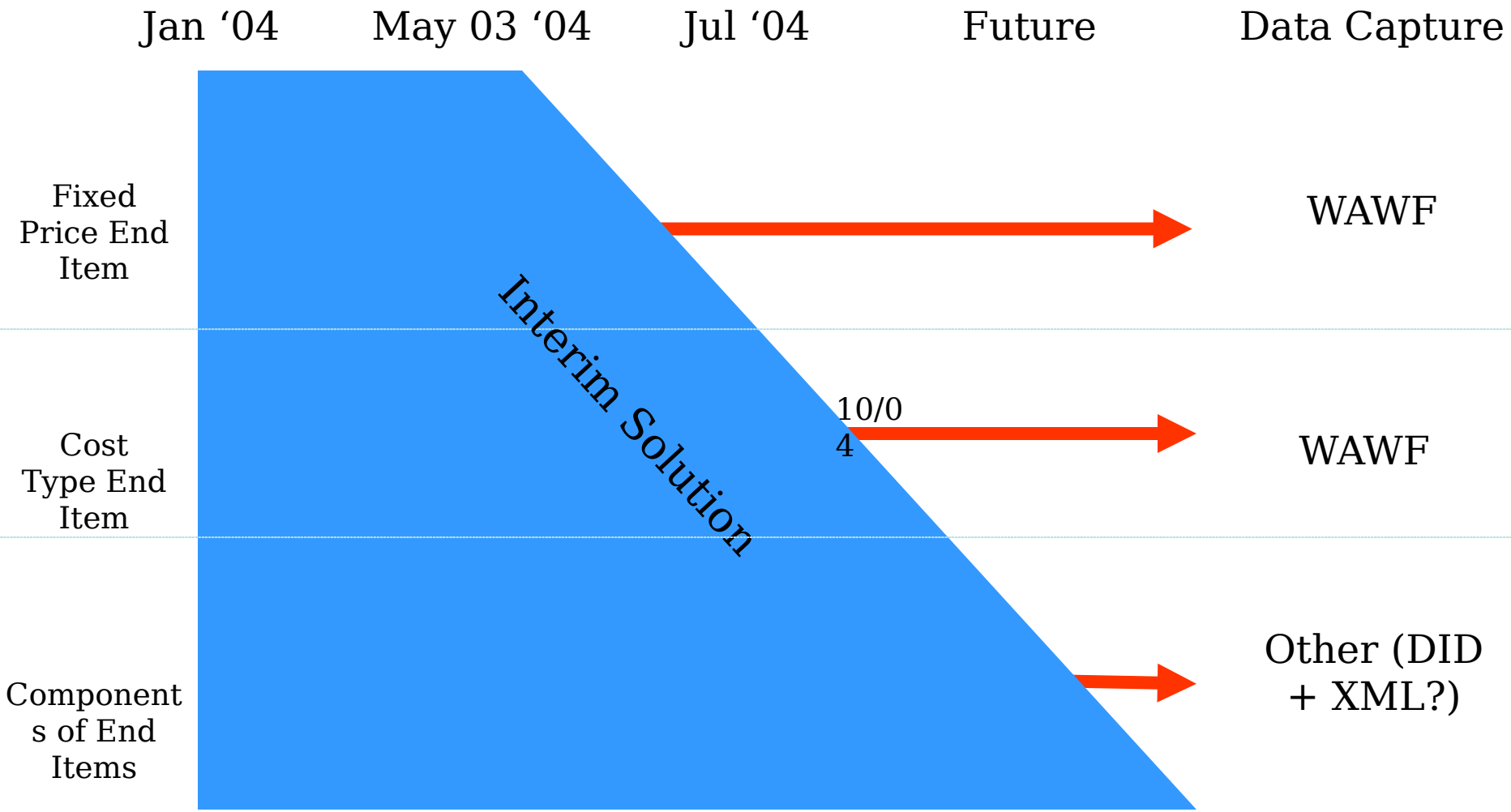
Email notices sent to next workflow us

System Distributes

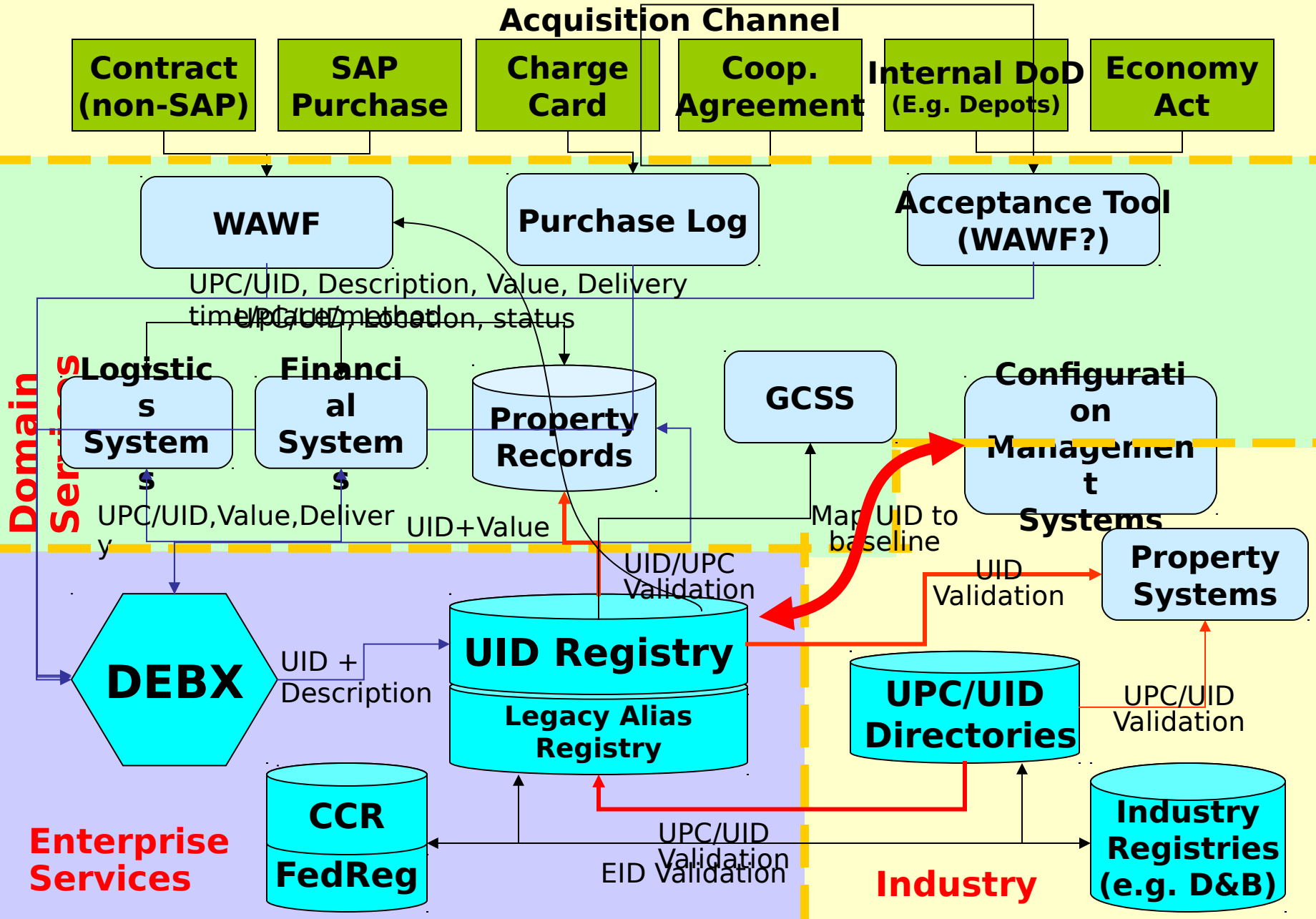
Operational View



Interim UID Timeline



UID Data Capture and Reuse



Unique Item Identification Data Submission Information

- Initial constraints for UID data submission include:
  - Submit fixed price contracts using an interim solution until WAWF is ready to receive data in May 2004
  - Submit cost type contracts using an interim solution until WAWF is ready in October 2004
  - Provide for end items only
- When a contractor ships items UID data must be included in the shipment notification as the contract specifies and as the PM requests.
- Submission of UID data in the interim
  - FTP format via WAWF
  - X12 Ship Notice/Shipment and Billing Notice via DEBX
  - UID XML format
  - Manually enter via UID Web entry site

Using the UID

- For activities after initial delivery, in support of the product life cycle, any entity that collects data about the item must be capable of associating the data with the UID in accordance with the program requirements.
- Using syntax and semantics translation table, software that resides either in the AIT device or the AIS can translate between the three approved, interoperable formats

Formats:

ATA: Text Element Identifiers

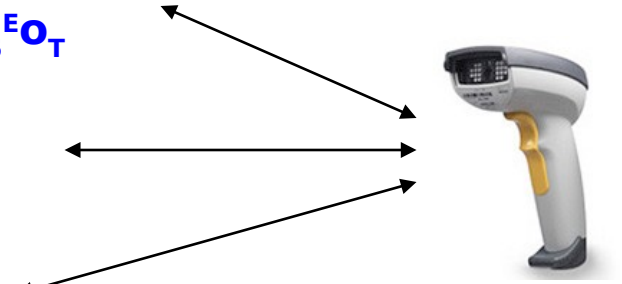
[)>RS*DD*GSMFR 0CVA5GSSER 674A36458RSEOT

EAN.UCC: Application Identifiers

[)>RS05GS800406141411A0B9C3D6RSEOT

MH 10.8.2: Data Identifiers

[)>RS06GS17V0CVA5GS1P1234GSS786950RSEOT



Business Rules for Capturing the Unique Identifier (Selected)*

- For activities after initial delivery, in support of the product life cycle, any entity that collects data about the item must be capable of associating the data with the UID in accordance with program requirements.
  - Need an AIT reader
- Discovery of duplicate UID will occur when the government attempts to register the UId in its internal data base. If a true duplicate exists, the government will work with appropriate enterprise(s) to resolve the duplication
- In a database, once the UID is derived it shall not be parsed to determine the original elements.
- A database shall be capable of using the UID or combination of its component data elements to retrieve the data record associated with the item represented by the UID

* Department of Defense Guide to Uniquely Identifying Items Appendix C – Business Rules (Version 3.5a)

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Bottom Line

- Program managers will identify items embedded in end items that require unique identification, including embedded subassemblies, components and parts. These embedded items will identified in a Contract Data Requirements List (CDRL) or Exhibit.

- Contracting officers shall include the clause at 252.211-7003, Item Identification and Valuation, in all solicitations and contracts that require delivery of items.

- All items delivered to the Department will be delivered under a contract line item and the Department's acquisition cost of each item will be identified under a contract line item or sub-line item

- Contractors are required to provide unique item identification, or a DoD recognized unique identification equivalent, for all items delivered with an acquisition cost of $5,000 or more and as designated by the requiring activity for items less than $5,000.

- Under the clause at 252.211-7003, marking of items shall be in accord with MIL-STD-130L, Identification Marking of U.S. Military Property.

Agenda

- Overview of UID Program
- Contracting for UID
- The UID Mark
- Marking Items
- Capturing and Using UID Data
- UID Program Schedule
- Bottom Line
- Resources

"Unique identification is the ability to physically distinguish one item from another…We view a unique identifier as a set of data for assets that:

- *is globally unique and unambiguous*
- *ensures data integrity and data quality throughout life*

Resources & Contact Information

DoD Guide to Uniquely Identifying Items and other relevant UID materials including policy memos can be found at

www.acq.osd.mil/uid or www.uniqueid.org

For further information or questions, please contact:

- **UID Program**
  - Mr. Robert Leibrandt at **robert.leibrandt@osd.mil** or at (703) 695-1099
- **UID Standards**
  - Lt Col Gregory Redick at **gregory.redick@dcma.mil**
- **UID Training from Defense Acquisition University**
  - **Capital & Northeast Region: (703) 805-2764 (DSN 655)**
  - **Mid-Atlantic Region: (240) 895-7344**
  - **South Region: (256) 722-1100 (DSN 788)**
  - **Mid-West Region: (937) 781-1025**
  - **West Region: (619) 524-2995 (DSN 524)**

Or by e-mail to uidprogramtraining@dau.mil